No.



200600173

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Oklahoma Agricultural Experiment Station (OAES)

ALCCUS, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE REGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR MPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE VER PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE SE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT OBY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE ENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321

WHEAT, COMMON

'OK Bullet'

In Jestimonn Marcrot, I have hereunto set my hand and caused the seal of the Plant Harrety Protection Office to be affixed at the City of Washington, D.C. this fifth day of June, in the year two thousand and six.

Attest:

Plant Variety Protection Office Agricultural Marketing Service Agriculture

CAPACITY OR TITLE

Assistant Director-OAES

DATE

DATE

3-21-06

CAPACITY OR TITLE

Assistant Director-OAES

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office Telephone: (301) 504-5518 FAX: (301) 504-5291

Homepage: http://www.ams.usda.gov/science/pvpo/pvpindex.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:

- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
- (2) the details of subsequent stages of selection and multiplication;
- (3) evidence of uniformity and stability; and
- (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
 - (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
- 20. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
- 23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
- 24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.
- 22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)
- 23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

 September 16, 2005 Foundation seed sold for increase purposes by the Oklahoma Foundation Seed Service
- 24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

OK BULLET-AN AWNED HRWW FOR OKLAHOMA AND THE GREAT PLAINS

Origination and Breeding Procedure

OK Bullet was tested as OK00514. It is an F3-derived line that was selected from the single cross, Jagger/KS96WGRC39. The original hybridization was performed by Dr. David Worrall, formerly with Texas A&M University and the Texas Agricultural Experiment Station at Vernon. He crossed an experimental line identified by its pedigree as KS82W418/Stephens (eventually named Jagger) with KS93U206, which was subsequently released by the Kansas Wheat Genetics Resources Center as KS96WGRC39. The pedigree of KS96WGRC39 is TAM 107*3/TA2460. KS96WGRC39 epitomized a large interspecific breeding effort to introgress novel disease resistance genes from *Triticum tauschii* accessions (TA) into bread wheat. TA2460 provided resistance to leaf rust and tan spot. We recommend the pedigree of OK00514 be given as Jagger/KS96WGRC39.

Dr. Worrall produced the F_1 , F_2 , and F_3 generations. In the spring of 1997, Dr. Brett Carver selected 100 single heads from a F_3 bulk population named 97V8054 produced at the Texas A&M Research and Extension Center located near Chillocothe, TX. This population and others were chosen from a larger set of breeding populations on the basis of yield potential, desirable height, lodging resistance, and maturity. They were graciously made available by Dr. Worrall.

The head-row progeny of 97V8054 were evaluated at Stillwater, OK in 1998, and OK00514 traces to a single F_{3:4} head-row identified as 981151015-8. This head-row was selected on the basis of late first-hollow-stem (FHS), uniformity of phenotype at harvest, spike density, spike size, and plump kernels. In 1999, the progeny of 981151015-8 were evaluated in the Dual-Purpose Observation Nursery (DPON). This nursery was managed as a forage-plus-grain system at Stillwater and a grain-only system at Lahoma, and selections were based on vegetative biomass ratings, growth habit, heading date, dormancy release rating, disease resistance, seed quality, and yield.

From 2000 through 2004, OK00514 was evaluated in the following replicated yield trials, representing 41 site-years in Oklahoma:

Replicated Yield Trials 1 (RYT1, Western OK)	2000
Replicated Yield Trials 2 (RYT2, Central OK)	2001
Oklahoma Elite Nursery 1 (OET1)	2002
Oklahoma Elite Nursery 2 (OET2), 2 yr	2003, 2004
Southern Regional Performance Nursery (SRPN)	2004, 2005
Oklahoma Wheat Variety Trials (WVT)	2004

Further testing was provided in the USDA-ARS Regional Germplasm Observation Nursery during 2002-2003. The SRPN included an additional 21 sites outside of Oklahoma. End-use quality was externally examined by the USDA-ARS Hard Winter Wheat Quality Laboratory in Manhattan, KS and by ConAgra, Inc. in Omaha, NE in 2004. OK00514 was entered in the 2004 Hard Winter Wheat Milling and Baking Evaluation Program sponsored by the Wheat Quality Council.

Breeder-seed multiplication and off-type removal occurred from 2002 through 2004. The original breeder-seed of OK00514 produced in 2002 had approximately 5% white kernels. This seed was passed through a high-speed, electronic, single-kernel sorter to remove the white kernels (service provided by Floyd Dowell, Engineering Research Unit, USDA-ARS-GMPRC). The final proportion of red kernels based on the NaOH-bleach test was 98%. This source of breeder seed was used to plant a small increase in 2003 at Stillwater, followed by a much larger increase in 2004 at Goodwell. The final increase produced sufficient breeder seed to plant 32 acres for foundation seed production near McCloud, OK in the fall of 2004. As of the 2006 crop year, OK00514 is an F₃-derived line in the F₁₂ generation.

OK Bullet was officially released by the Oklahoma Agricultural Experiment Station and the USDA/ARS in 2005. It has been observed to be uniform and stable for the past three generations. OK Bullet contains seed of the hard white class at a frequency of 2.0%.

Revision to Application no. 200600173, Wheat, Common, 'OK Bullet'

Revised Exhibit A - Statement of Type of Variants

OK Bullet does contain seed of the hard white class at a frequency of 2.0%, which produces plants phenotypically indistinguishable from the variety itself. The white seed, and the resulting plants, are considered variants, not off-types, according to the three-part definition provided by the Plant Variety Protection Office. The cross from which OK Bullet originated produced a series of head-row progenies that were either uniform for bran-coat type (white or red) or segregated for plants producing seed of either color. This characteristic was noted during the year the head row progenies were evaluated. The head row from which OK Bullet was derived most likely contained a very small proportion of plants producing seed with a white bran-coat.

EXHIBIT B—STATEMENT OF DISTINCTNESS

OK Bullet closely resembles the hard red winter wheat cultivar 'Jagger', and Jagger is also one of the two parents used in the cross to create OK Bullet. Therefore, the distinctness of OK Bullet will be based on its differences from Jagger.

Supportive Data for Distinctness

1. Leaf rust resistance

Jagger carries the Lr17 seedling resistance gene for leaf rust, whereas OK Bullet does not (USDA-ARS Cereal Rust Disease Laboratory, St. Paul, MN).

2. Kernel size

Kernel size in hard winter wheat is directly measured by the large-kernel fraction, which was determined by sifting a 200-g grain sample for 1 minute through a Tyler sieve no. 7 (2.80-mm-wide slots) with a Tyler Ro-tap sieve shaker (W.S. Tyler Co. Mentor, OH). The large-kernel fraction is the proportion of grain retained on the sieve. Kernel size can also be estimated by kernel weight and kernel diameter measurements generated by the Single Kernel Characterization System (SKCS, Perten Instruments, Reno, NV).

Paired comparisons of OK Bullet and Jagger were extracted from uniform breeder nurseries conducted at two Oklahoma locations in 2001 and at four Oklahoma locations in 2002. The 2001 nursery contained 19 entries, including these two varieties, whereas the 2002 nursery contained 20 entries. Grain samples were composited across field replications; hence, the location factor provided the experimental unit for varietal comparisons. An analysis of variance was conducted across locations within years to generate the experimental error variance (estimated by the genotype x environment interaction mean square), from which a simple LSD value was calculated as shown in Table 1. Comparison of two varieties by the LSD, in this case, is equivalent to an F-test based on a single degree-of-freedom (df) contrast (OK Bullet vs. Jagger).

The paired comparisons reveal a consistent, significant difference (P<0.05) in each year for each kernel size trait. OK Bullet exceeded Jagger by an average (across years) of 48% in large-kernel fraction, 21% in thousand-kernel weight, and 14% in kernel diameter. The aggregate impact of these traits is an increase in milling quality of OK Bullet, one of the primary motivations behind its release.

3. Test weight

Milling quality is also manifested in test weight. With its very high test weight, OK Bullet belongs in an elite class among HRW cultivars (reported previously by Edwards et al., Production Technology, 2005-10, at http://www.wheat.okstate.edu/vtr/index.htm).

Paired comparisons of OK Bullet and Jagger were extracted from the OSU Wheat Variety Trials conducted statewide in 2004 and 2005. Data from four such trials are shown in Table 2, representing the four major regions and management systems for wheat production in the state: Goodwell (High Plains), Elk City, (western OK), and Marshall (north central OK), where GO and DP represent grain-only and dual-purpose management systems, respectively. Each nursery contained an average of 20 entries (varieties), including OK Bullet and Jagger. Grain samples were collected within each of four field replications per trial. An analysis of variance was conducted within each trial, from which the experimental error variance (estimated by the block x entry mean square) was estimated to compute a simple LSD value. Comparison of two varieties by the LSD, in this case, is equivalent to an F-test based on a single degree-of-freedom (df) contrast (OK Bullet vs. Jagger).

The paired comparisons reveal a consistent and substantial difference (P<0.05) in each trial. OK



Bullet exceeded Jagger by an average (across trials) of 2 lb/bu, which would be of sufficient magnitude to cause a change in grade. The superior test weight of OK Bullet is indicative of higher milling quality, another of the primary motivations behind its release.

4. Seed Color

OK Bullet is a red-seeded variety, but it contains 2% white grain (as mentioned in Exhibit A), whereas Jagger is 100% red seeded.

Other Descriptive Information

OK Bullet has a moderately early to intermediate heading date that ranks between Jagger (2.7 d earlier) or Ok101 (0.6 d earlier), and Ok102, Endurance, or Deliver (each about 1.5 d later). OK Bullet would be classified as a moderately early maturing variety. It also maintains a functional and healthy flag leaf longer than most cultivars, and substantially longer than Jagger. The penultimate leaf on OK Bullet is still mostly green when the flag leaf on Jagger has become necrotic. Differences in maturity between Jagger and OK Bullet are negligible.

OK Bullet is considered a semidwarf wheat and it contains the Rht1 gene (G. Bai, USDA/ARS Manhattan, KS, 2005, personal communication). In the field it is 3-13 cm taller than all check varieties. It is 8 cm taller than Jagger and Ok101, which are considered moderately tall varieties. As a tall semidwarf, it has good lodging resistance, being rated more favorably (2 on a scale of 1 to 5) than Jagger (3.5) and slightly better than Ok101 (2.5), but not as resistant as 2174 (1.0).

Disease and insect reactions

A brief summary of disease reactions for OK Bullet follows:

<u>Disease</u>	Reaction
Leaf rust (adult plant)	Intermediate to susceptible
Leaf rust (seedling)	Susceptible
Stripe rust (adult plant)	Moderately resistant
Stem rust	Moderately resistant
WSBMV/WSSMV complex	Intermediate to resistant
Barley yellow dwarf virus	Moderately susceptible
Septoria leaf blotch	Moderately resistant
Tan spot	Moderately resistant
Powdery mildew (adult)	Susceptible
Fusarium head blight (scab)	Intermediate

Per Correspondence of 4/17/2006 MAH 4/17/06

OK Bullet is susceptible to the prevalent biotypes of greenbug, Russian wheat aphid, and Hessian fly.

Milling quality

Kernel texture of OK Bullet is considered moderately hard, with a mean SKCS kernel hardness value of 72 across 19 environments. Its kernel hardness value is 18 units greater than Deliver (70 vs. 52), but is equal to 2174 (75 vs. 74) and to Jagger (74 vs. 76).

Protein content

The high-molecular-weight glutenin-subunit (HMW-GS) profile for OK Bullet is 1/17+18/5+10, which is identical to Jagger. Across identical locations, OK Bullet and Jagger had the same protein level.

Baking quality

Across 19 environments in 4 years of testing, mixogram parameters for OK Bullet averaged 6.0 min for corrected mixing time, a mixograph rating of 4.3, mixogram curve width of 14.7 mm at 2 minutes past peak development, and a stability index of 7.9. These values are very similar to those of Jagger. Mixing time for OK Bullet is about ideal, and tolerance to over-mixing is very good. It should be classified as having highly desirable mixing characteristics.

In a two-year comprehensive milling, baking, and noodle evaluation provided by the Hard Winter Wheat Quality Laboratory of the USDA-ARS Grain Marketing Production Research Center (GMPRC-HWWQL) at Manhattan, KS, OK Bullet was considered to have outstanding milling and baking quality. The only weakness mentioned was its loaf volume. The 2004 Wheat Quality Council report concluded that OK Bullet was a highly desirable wheat variety for end-use quality and gave it an above-average "Overall Baking Quality". Obviously, OK Bullet will be a variety in demand for commercial, large-scale baking operations.

Summary Justification

OK Bullet has a combination of traits, including high yield potential, high test weight, high protein content, and exceptional end-use quality that make it a complete variety from drill to mill. OK Bullet will appeal to the grower who has traditionally grown Jagger. The two varieties have similar stand establishment, ontogeny, and visual appearance, but OK Bullet definitely has higher yield potential (275 kg/ha in statewide trials) and higher test weight. OK Bullet also has better straw strength and standability than Jagger.

Area of Adaptation

the north central region. Many farmers in this region are adopting minimum tillage or no-till management systems, which favor development of septoria leaf blotch and tan spot, and OK Bullet is moderately resistant to both diseases. Also, this region has low pH soils with aluminum toxicity and OK Bullet is considered very tolerant to excess aluminum in the soil. An intermediate level of resistance to the WSBMV/WSSMV complex is also an important attribute for this region. Its range of adaptation may extend into western Oklahoma and the panhandle, but its tendency for early arrival to FHS may cause a problem for this region.

Cooperating Scientists

Identification of OK Bullet as a candidate cultivar was accomplished through OSU's Wheat Improvement Team, which includes Brett Carver (lead scientist), Bob Hunger, Art Klatt, Dave Porter, Jeanmarie Vercot-Lubicz, Patricia Rayas-Duarte, Bjorn Martin, Jeff Edwards, and former team member Gene Krenzer (retired). Also cooperating in its testing were public and private breeders throughout the Great Plains. Dr. David Worrall is duly recognized for producing the hybrid cross and the early-generation bulk materials from which Ok Bullet was eventually selected. Special assistance was provided by Brad Seabourn with USDA-ARS-GMPRC-HWWQL at Manhattan, KS, Mary Sorenson with ConAgra Foods, Inc. at Omaha,NE, and Floyd Dowell with the Engineering Research Unit, USDA-ARS-GMPRC at Manhattan, KS.

Table 1. Kernel size attributes for OK Bullet vs. Jagger at two to four locations in two years.

	Large-kernel fraction (%)		SKCS	SKCS TKW (g)		ernel diam nm)
	2001	2002	2001	2002	2001	2002
OK Bullet					٠.	
Mean	85.1	78.5	33.3	31.3	2.59	2.49
Min	81.8	75.2	32.2	30.8	2.55	2.46
Max	88.4	82.3	34.3	31.7	2.62	2.51
Jagger						
Mean	59.1	51.8	28.0	25,6	2.29	2.16
Min	43.4	31.2	26.6	21.3	2.20	1.94
Max	74.7	60.4	29.3	27.8	2.37	2.27
LSD (0.05)		9.0	1.8	2.1	0.12	0.10
% difference	44.0	51.5	18.9	22.3	13.1	15.3

All traits:

Range in 9/28/00 - 9/11/01 - sowing date 10/14/00 10/18/01

Range in 6/14/01 - 6/18/02 - harvest date 6/20/01 7/9/02

Two paired observations in 2001; four paired observations in 2002 LSD determined from complete nursery containing 19 entries in 2001, 20 entries in 200 Error term for LSD derived from genotype x environment interaction variance

Table 2. Test weight comparisons (in lb/bu) for OK Bullet vs. Jagger at four Oklahoma locations in two years.

* *		•							
	Elk City		Good	Goodwell		Marshall - GO		Marshall - DP	
	2004	2005	2004	2005	2004	2005	2004	2005	
OK Bullet		•							
Mean	62.1	59.2	60.7	61.1	62.0	56.9	60.7		
Min	61.7	58.8	60.3	58.0	61.7	55.9	59.8	56.4	
Max	62.4	59.6	61.4	61 <i>.</i> 4	62.3	58.0	61.6	57.9	
Jagger									
Mean	61.2	57.7	57.9	58.3	60.8	54.3	58.3	55.2	
Min	60.5	57.5	55.3	58.1	59.3	52.8	57.0	53.6	
Max	62.0	57.9	59.1	58.9	62.2	55.4	59.4	57.7	
LSD (0.05)	0.6	1.0	0.9	0.9	0.7	1.0	1.2	1.6	
% difference	1.5	2.6	4.8	4.8	2.0	4.8	4.1	3.4	
Sowing date	9/22/2003	9/29/2004	10/2/2003	10/1/2004	10/10/2003	10/29/2004	9/7/2003	8/31/2004	
Harvest date	6/3/2004	6/5/2005	6/11/2004	6/8/2005	6/2/2004	6/10/2005	6/2/2004	6/10/2005	

Four replicates per variety per location-year

LSD determined from complete nursery in each location-year containing about 20 varieties

LSD estimated with error term derived from experimental error variance in each location-year

REPRODUCE LOCALLY. Include form number and date on all reproductions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY **PLANT VARIETY PROTECTION OFFICE** BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY

		(<i>Triticum</i> spp.)	ANIET I	•	
NAME OF APPLICANT (S)	TEMPORARY OR EXPER	IIMENTAL DESIGNATION	VARIETY	NAME	
Oklahoma Agricultural Experiment Sta	tion OK00514		OK BU	LLET	
ADDRESS (Street and No. or RD No., City, State, Zip Code and Co	nuntry)		FOR OFFI	TAL USE ONLY	
Oklahoma State University			PVPO NUM		
139 Ag Hall			2	00600	
Stillwater, OK 74078 Attn: Robert We	sterman			# 6 # W	
PLEASE READ ALL INSTRUCTIONS CAREF	ULLY:				
Place the appropriate number that describes th	e varietal character of this va	riety in the boxes below. P	lace a zero in the	first box (e.g., 0 9	
when number is either 99 or less or 9 or less re	spectively. Data for quantital	tive plant characters should	be based on a n	ninimum of 100 plant	s. Comparative data
should be determined from varieties entered in designate system used: Royal Horticultura					
your application.		Please answer all questions	for your variety;	lack of response ma	y delay progress of
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
1. KIND:		2. VERNALIZATIO	N:		
1 = Common		2 1 = Sp	ring		
2 = Durum 3 = Club		2 = Wi			*
4 = Other (Specify)		3 0	ior (opeany)		
3. COLEOPTILE ANTHOCYANIN:		4. JUVENILE PLAN	IT CDOWN!		<u> </u>
1		2			•
1 = Absent 2 = Pre	sent	1=F	rostrate	2 = Semi-erect	3 = Erect
5. PLANT COLOR: (boot stage)		6. FLAG LEAF: (bo	ot stage)		
1 = Yellow-Green		2 1 = Ere	ect	2 = Recurved	
2 = Green 3 = Blue-Green		2 1 = Not	t Twisted	2 = Twisted	
·		The second second	x Absent	2 = Wax Present	
		l-end		2 WAX FESSIN	****
7. EAR EMERGENCE:	•				
0 2 6 Number of Days (Average)					
0 2 Number of Days Earlier Than	∗ Ok 102, Endurance	e, Deliver	•		
Same As	, Ok 101				
0 3 Number of Days Later Than	, Jagger			_	
· · · · · · · · · · · · · · · · · · ·	*Relative to a PVPO-Appr	oved Commercial Variety G	Frown in the Sam	– e Trial	
8. ANTHER COLOR:					
1 1 = Yellow 2 = Purple					

					Carried States	Bestern	and a	C. T.
3,00	10	450	4	1	1700	100	er.	100

9.	PLANT	HEIGHT:	(from	soil to tor	of head.	excluding aw	ns)
•			(v)	00" to top	01110441	Choice and G	,

0	8	Œ٥

cm (Average)

0	8

0	8

cm Taller Than

Jagger and Ok 101

Same As

cm Shorter Than

Scout 66

10. STEM:

A. ANTHOCYANIN

1 = Absent

2 = Present

Bre 3/17/06

B. WAXY BLOOM



1 = Absent

2 = Present

C. HAIRINESS (last internode of rachis)

1 = Absent

2 = Present

D. INTERNODE

1 = Hollow

Number of Nodes

2 = Semi-solid

3 = Solid

E. PEDUNCLE

1 = Erect 2 = Recurved

3 = Semi-erect

3 6 cm Length

F. AURICLE

Anthocyanin:

1 = Absent

2 = Present

Hair:

1 = Absent

2 = Present

11. HEAD: (At Maturity)

A. DENSITY

2

1 = Lax

2 = Middense (Laxidense)

3 = Dense

B. SHAPE

2

1 = Tapering

2 = Strap

3 = Clavate

4 = Other (Specify)

C. CURVATURE

1 = Erect 2 = Inclined

3 = Recurved

D. AWNEDNESS

1 = Awnless

2 = Apically Awnletted

3 = Awnletted

4 = Awned

12. GLUMES: (At Maturity)

A. COLOR

4

1'= White

B. SHOULDER

2 = Tan

3 = Other (Specify)

7 = Other (Specify)

E. BEAK WIDTH

1 = Narrow

2 = Medium

3 = Wide

F. GLUME LENGTH

1 = Short (ca. 7mm)

C. SHOULDER WIDTH

1 = Wanting

3 = Rounded

5 = Elevated

1 = Narrow

3 = Wide

2 = Medium

D. BEAK

3

1 = Obtuse

2 = Acute

3 = Acuminate

2 = Medium (ca. 8mm)

3 = Long (ca. 9mm)

G. WIDTH

1 = Narrow (ca. 3mm)

2 = Medium (ca. 3.5mm)

3 = Long (ca. 4mm)

2 = Oblique

4 = Square

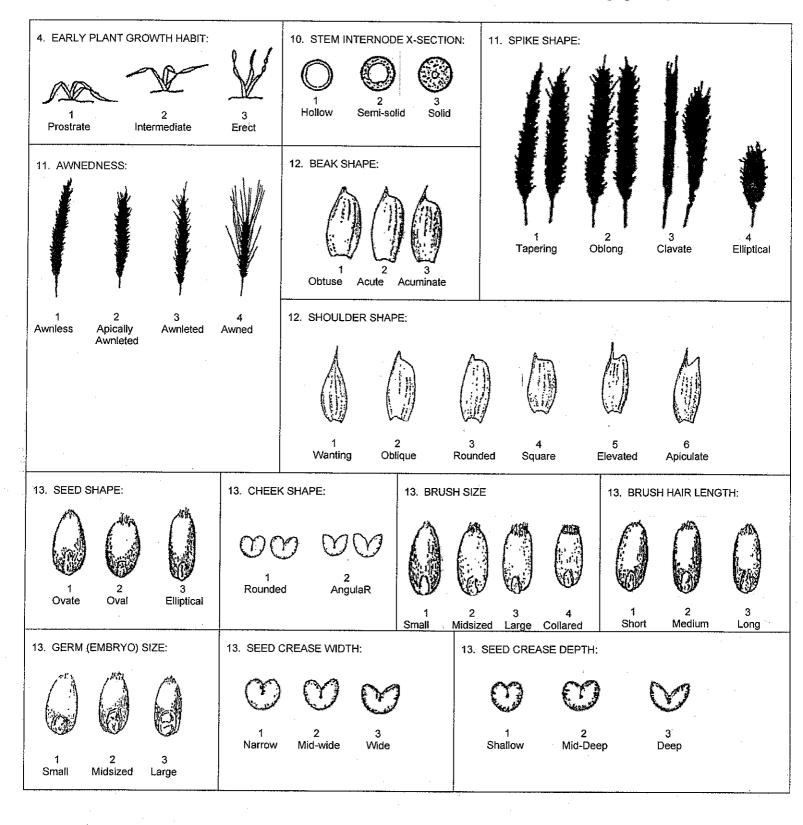
6 = Apiculate

13. S	SEED:	٠.			
	A. SHAPE		E. COLOR	20060017	13
1	1 = Ovate 2 = Oval 3 = Elliptical		3 1 = White 2 = Amber 3 = Red 4 = Other (Spe	ecify)	
E	B. CHEEK		F. TEXTURE		
1	1 = Rounded 2 = Angular		1 = Hard 2 = Soft 3 = Other (Spe	ecify)	·
· · · · · · · · ·	C. BRUSH		G. PHENOL REACTION		
1	1 = Short 2 = Medium 3 = Long	1 = Not Collared 2 = Collared	0 1 = Ivory 2 = Fawn 3 = Light Brow	4 = Dark Brown 5 = Black n	
2	1 = Width 60% or less of Kernel 2 = Width 80% or less of Kernel 3 = Width Nearly as Wide as Kernel 1 = Depth 20% or less of Kernel 2 = Depth 35% or less of Kernel 3 = Depth 50% or less of Kernel		H. SEED WEIGHT 3 2 g/1000 St I. GERM SIZE 3 1 = Small 2 = Midsize 3 = Large	eed (Whole number only)	
3 2 3 0 0 0 3 3 0 1 2 8 0 1 2 8 0 1 1 2 8 0 1 1 2 8 0 1 1 1 2 8 0 1 1 1 2 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Stripe Rust (Puccinia striiformis) Tan Spot (Pyrenophora tritici-repentis) Halo Spot (Selenophoma donacis) Septoria nodorum (Glume Blotch) Septoria avenae (Speckled Leaf Disea Septoria tritici (Speckled Leaf Blotch) Scab (Fusarium spp.) "Black Point" (Kernel Smudge) Barley Yellow Dwarf Virus (BYDV) Soilborne Mosaic Virus (SBMV) Wheat Yellow (Spindle Streak) Mosaic Wheat Streak Mosaic Virus (WSMV) Other (Specify) Other (Specify)	ed 1 = Susceptible ici) se)	2 = Resistant 3 = Interm 1 Leaf Rust (Puccinia reco 0 Loose Smut (Ustilago trit 0 Flag Smut (Urocystis agr 0 Common Bunt (Tilletia trit 0 Dwarf Bunt (Tilletia indic 1 Powdery Mildew (Erysip) 0 "Snow Molds" 0 Common Root Rot (Fusa 0 Rhizoctonia Root Rot (Ri 0 Black Chaff (Xanthomonia 0 Bacterial Leaf Blight (Psa 0 Other (Specify) Other (Specify)	ndita f. sp. tritici) ici) ici) ici) ici) itici or T. laevis) oversa) ia) ne graminis f. sp. tritici) inium, Cochliobolus and Bipolaris spp.) inizoctonia solani) ias campestris pv. translucens). ieudomonas syringae pv. syringae)	
<u> </u>	Other (Specify)		Otner (Specify)		
15. IN	SECT: (0 = Not Tested 1 = Susc	ceptible 2 = Resistan	t 3 = Intermediate 4 = 1	Folerant)	
। ज	.	PLEASE SPEC	CIFY BIOTYPE (where needed)		
	Hessian Fly (<i>Mayetiola destructor</i>)		Other (Specify)		
[0	Stem Sawfly (Cephus spp.)		Other (Specify)	 	
0	Cereal Leaf Beetle (Oulema melanopa)	· }	Other (Specify)		17

15. INSECT: (continued)	0 = Not Tested	1 = Susceptible	2 = Resistant	3 = Intermediate	4 = Tolerant		
_	÷	PLEASE S	SPECIFY BIOTYPE	(Where Needed)	2006	00	173
Russian Aphid (D	iuraphis noxia)		Other (Specify)			_
1 Greenbug (Schiza	aphis graminum)		Other (Specify)			=
1 Aphids			Other (Specify)			-
				4W4			

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

#7 EAR EMERGENCE: Number of Days = Days after March 31 #13G PHENOL REACTION = Unknown



REPRODUCE LOCALLY. Include form number and edition date on a	Il reproductions.	ORM APPROVED - OMB No. 0581-0058
U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP	Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).	
1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME
• •	OR EXPERIMENTAL NUMBER	3. VARIETT NAME
Oklahoma Agricultural Experiment Station (OAES)	OK00514	OK BULLET
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)	5. TELEPHONE (Include area code)	6. FAX (Include area code)
Oklahoma State University 139 Ag Hall	(405) 744-5398	(405) 744-5269
Stillwater, OK 74078	7. PVPO NUMBER	16
	20	0600173
8. Does the applicant own all rights to the variety? Mark an "X" in the	e appropriate block. If no, please expla	n. YES NO
9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.		
10. Is the applicant the original owner? YES NO If no, please answer one of the following:		
a. If the original rights to variety were owned by individual(s), is (YES b. If the original rights to variety were owned by a company(ies) YES YES	NO If no, give name of count	ed company?
11. Additional explanation on ownership (Trace ownership from origin	nal breeder to current owner. Use the re	verse for extra space if needed):
		,
		•
	•	
·		
		•
!		
PLEASE NOTE:		
Plant variety protection can only be afforded to the owners (not licens	ees) who meet the following criteria:	4
 If the rights to the variety are owned by the original breeder, that penaltonal of a country which affords similar protection to nationals of 	erson must be a U.S. national, national o f the U.S. for the same genus and specie	f a UPOV member country, or
If the rights to the variety are owned by the company which employ nationals of a UPOV member country, or owned by nationals of a c genus and species.	red the original breeder(s), the company country which affords similar protection to	must be U.S. based, owned by nationals of the U.S. for the same
3. If the applicant is an owner who is not the original owner, both the o	original owner and the applicant must me	eet one of the above criteria.
The original breeder/owner may be the individual or company who din Act for definitions.	ected the final breeding. See Section 41	(a)(2) of the Plant Variety Protection
According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, control number. The valid OMB control number for this information collection is 0581-0055, including the time for reviewing the instructions, searching existing data sources, gathering as	I DR TIME (ROUTER) to complete this information collecti	of information unless it displays a valid OMB on is estimated to average 0.1 hour per response,

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provide and employer.